



Brucellosis

What is brucellosis?

Brucellosis, also called undulant fever, is an infectious disease caused by different species of the bacteria *Brucella*. It is usually a disease of animals, but it can sometimes cause disease in humans who have had contact with infected animals, or who consume food products from infected animals. The bacteria can infect sheep, goats, cattle, deer, elk, pigs, dogs, and several other mammals. Brucellosis is not common in the United States. Many of these cases reported are associated with foreign residence or travel. Brucellosis continues to be common in countries where animal disease control programs have not reduced the amount of disease among animals.

What are the symptoms of brucellosis?

In humans, brucellosis can cause a range of symptoms that may include fever, sweats, headache, back pain, and physical weakness. Severe infections of the central nervous system or lining of the heart may occur. Brucellosis can also cause long-lasting symptoms that include recurrent fever, joint pain, and fatigue.

How is brucellosis transmitted to humans, and who is likely to become infected?

Humans are generally infected in one of three ways:

- Eating or drinking food or beverages that contain *Brucella* bacteria,
- Breathing in the bacteria, or
- Open wounds or breaks in the skin of a person exposed to fluids from an animal infected with *Brucella*.

The most common way to be infected is by eating or drinking milk products from infected animals. When the females are infected, their milk contains the bacteria. If the milk is raw (unpasteurized), these bacteria can be transmitted to persons who drink the milk or eat dairy products made from this milk.

Inhalation of *Brucella* organisms is not a common route of infection, but it can be a significant hazard for people in certain occupations, such as those working in laboratories.

Infection through breaks in the skin may occur in slaughterhouse or packing plant workers, those assisting an animal birth, or veterinarians handling infected animals and carcasses. Hunters may be infected through skin wounds or by accidentally ingesting the bacteria after butchering deer, elk, moose, or wild pigs.

My dog has been diagnosed with brucellosis. Is that a risk for me?

Brucella canis is the species of *Brucella* that can infect dogs. This species has occasionally been transmitted to humans, but most dog infections do not cause human illness. The risk for pet owners is low because it is unlikely you will come in contact with the blood, semen, or placenta of an infected dog compared to a veterinarian. People with weakened immune systems (i.e., cancer patients, HIV-infected individuals, or transplantation patients) should not handle dogs known to be infected with *B. canis*.

Can brucellosis be spread from person to person?

Direct person-to-person spread of brucellosis is extremely rare. Mothers who are breastfeeding may transmit the infection to their infants. Sexual transmission has also been reported. Breastfeeding infants of infected mothers or sexual partners of infected cases can take antibiotics to reduce their risk of becoming infected.

How soon do symptoms appear?

Symptoms may appear within 5 to 60 days.

Could *Brucella* be used in a bioterrorism attack?

Brucella is considered a category B agent because it is moderately easy to spread and would result in moderate rates of disease and low death rates.

How is brucellosis diagnosed?

Brucellosis is diagnosed in a laboratory by finding *Brucella* organisms in samples of blood or bone marrow. Also, blood tests can be done to detect antibodies against the bacteria. If this method is used, two blood samples should be collected 2 weeks apart.

Is there a treatment for brucellosis?

Yes. While treatment can be prolonged, doctors can prescribe effective antibiotics.

Is there a vaccine for brucellosis?

There is no vaccine for humans against brucellosis. A vaccine is available for livestock.

What can be done to prevent infection with brucellosis?

1. Do not consume milk, cheese, ice cream, or other dairy products while traveling unless you can verify that it has been pasteurized.
2. Wild pigs may be infected with brucellosis. Do not handle meat from these animals without wearing rubber gloves. Be sure to bury remains deeply enough that scavengers such as coyotes cannot retrieve them.
3. Hunters, herdsman, and those working in animal processing should wear rubber gloves when handling animal tissue, including afterbirths.
4. Afterbirths (placenta) can contain *Brucella* bacteria. Wear rubber gloves when assisting an animal birth, and disinfect the area following the birth. Dispose of the afterbirth, discharges, and fetuses.
5. Persons with weakened immune systems (i.e., cancer patients, HIV-infected individuals, or transplantation patients) should not handle dogs known to be infected with *Brucella canis*.